

SEQUENCE LISTING

<110> Alitalo et al

<120> VEGF-C OR VEGF-D MATERIALS AND METHODS FOR TREATMENT OF NEUROPATHOLOGIES

<130> 28967/37564B

<160> 38

<170> PatentIn version 3.0

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Gln	Asn	Gly	Tyr	Tyr	Val	Lys	Ser	Tyr	Lys	Leu	Glu	Val	Ser	Thr	Asn		
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gga	gag	gac	tgg	atg	gtg	tac	cgg	cat	ggc	aaa	aac	cac	aag	gta	ttt	1152	
Gly	Glu	Asp	Trp	Met	Val	Tyr	Arg	His	Gly	Lys	Asn	His	Lys	Val	Phe		
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tgg atg tat gac cat gcc aag tgg ctc cgg acc acc tgg gcc agc agc Trp Met Tyr Asp His Ala Lys Trp Leu Arg Thr Thr Trp Ala Ser Ser 660 665 670				2016
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Gln	Ala	Thr	Gly	Gly	Arg	Gly	Val	Ala	Leu	Gln	Val	Val	Arg	Glu	Ala		
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Glu	Trp	Lys	His	Gly	Arg	Ile	Ile	Leu	Pro	Ser	Tyr	Asp	Met	Glu	Tyr		
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gcc	att	gat	gac	att	cgg	ata	agc	act	gat	gtc	cca	ctg	gag	aac	tgc	2400	
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Arg	Glu	Gly	Tyr	Glu	Asp	Glu	Ile	Asp	Asp	Glu	Tyr	Glu	Val	Asp	Trp		
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Lys	Glu	Lys	Ser	Trp	Leu	Tyr	Thr	Leu	Asp	Pro	Ile	Leu	Ile	Thr	Ile		
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Ile	Ala	Met	Ser	Ser	Leu	Gly	Val	Leu	Leu	Gly	Ala	Thr	Cys	Ala	Gly		
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Leu	Leu	Leu	Tyr	Cys	Thr	Cys	Ser	Tyr	Ser	Gly	Leu	Ser	Ser	Arg	Ser		
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Cys	Thr	Thr	Leu	Glu	Asn	Tyr	Asn	Phe	Glu	Leu	Tyr	Asp	Gly	Leu	Lys		
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Asn Ser Lys Asp Ala Gly Tyr Ile Thr Ser Pro Gly Tyr Pro Gln Asp
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Tyr Pro Ser His Gln Asn Cys Glu Trp Ile Val Tyr Ala Pro Glu Pro
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Asn Gln Lys Ile Val Leu Asn Phe Asn Pro His Phe Glu Ile Glu Lys
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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu
 85 90 95

Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr
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Ile Ile Ser Ser Gly Ser Met Leu Tyr Ile Lys Phe Thr Ser Asp Tyr
 115 120 125

Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr
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Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile
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Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr
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Phe Thr Ile Leu Ala Lys Pro Lys Met Glu Ile Ile Leu Gln Phe Leu
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Ile Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys
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Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro
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Leu Ile Gly Lys Tyr Cys Gly Thr Lys Thr Pro Ser Glu Leu Arg Ser
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Ser Thr Gly Ile Leu Ser Leu Thr Phe His Thr Asp Met Ala Val Ala
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Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Val His Gln Glu Pro Leu
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Ala Asn Glu Gln Ile Ser Ala Ser Ser Thr Tyr Ser Asp Gly Arg Trp
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Thr Pro Gln Gln Ser Arg Leu His Gly Asp Asp Asn Gly Trp Thr Pro
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Asn Leu Asp Ser Asn Lys Glu Tyr Leu Gln Val Asp Leu Arg Phe Leu
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Thr Met Leu Thr Ala Ile Ala Thr Gln Gly Ala Ile Ser Arg Glu Thr
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Gln Asn Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn
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Gly Glu Asp Trp Met Val Tyr Arg His Gly Lys Asn His Lys Val Phe
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Gln Ala Asn Asn Asp Ala Thr Glu Val Val Leu Asn Lys Leu His Ala
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Pro Leu Leu Thr Arg Phe Val Arg Ile Arg Pro Gln Thr Trp His Ser
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Thr Ala Val Glu Ala Arg Ala Phe Val Arg Lys Phe Lys Val Ser Tyr
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Gln Pro Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile
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Asp Trp Thr Asp Ser Lys Pro Thr Val Lys Thr Leu Gly Pro Thr Val
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Lys Ser Glu Glu Thr Thr Thr Pro Tyr Pro Thr Glu Glu Glu Ala Thr
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Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu
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Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Leu Glu Glu Pro Cys Gly
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Trp Met Tyr Asp His Ala Lys Trp Leu Arg Thr Thr Trp Ala Ser Ser
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Ser Ser Pro Asn Asp Arg Thr Phe Pro Asp Asp Arg Asn Phe Leu Arg
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Leu Gln Ser Asp Ser Gln Arg Glu Gly Gln Tyr Ala Arg Leu Ile Ser
 690 695 700

Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr
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Gln Ala Thr Gly Gly Arg Gly Val Ala Leu Gln Val Val Arg Glu Ala
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Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Gly
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Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr
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Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Ile His Glu
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Arg Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Val Asp Trp
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Ser Asn Ser Ser Ser Ala Thr Ser Gly Ser Gly Ala Pro Ser Thr Asp
835 840 845

Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile
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Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly
865 870 875 880

Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser
885 890 895

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Ile	Ile	Asn	Phe	Asn	Pro	His	Phe	Asp	Leu	Glu	Asp	Arg	Asp	Cys	Lys	
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Tyr	Asp	Tyr	Val	Glu	Val	Ile	Asp	Gly	Glu	Asn	Glu	Gly	Gly	Arg	Leu	
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Trp	Gly	Lys	Phe	Cys	Gly	Lys	Ile	Ala	Pro	Ser	Pro	Val	Val	Ser	Ser	
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Pro	Glu	Lys	Tyr	Pro	Asn	Cys	Leu	Glu	Cys	Thr	Tyr	Ile	Ile	Phe	Ala	
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Pro	Lys	Met	Ser	Glu	Ile	Ile	Leu	Glu	Phe	Glu	Ser	Phe	Asp	Leu	Glu	
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Gln	Asp	Ser	Asn	Pro	Pro	Gly	Gly	Met	Phe	Cys	Arg	Tyr	Asp	Arg	Leu	
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Cys	Gly	Gln	Lys	Thr	Pro	Gly	Arg	Ile	Arg	Ser	Ser	Ser	Gly	Val	Leu	
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ccg aca tac ggt ttt aac tgc gag ttt ggc tgg ggc tct cac aag aca Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser His Lys Thr 645 650 655	2324
ttc tgc cac tgg gag cat gac agc cat gca cag ctc agg tgg agt gtg Phe Cys His Trp Glu His Asp Ser His Ala Gln Leu Arg Trp Ser Val 660 665 670 675	2372
ctg acc agc aag aca ggg ccg att cag gac cat aca gga gat ggc aac Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly Asp Gly Asn 680 685 690	2420
ttc atc tat tcc caa gct gat gaa aat cag aaa ggc aaa gta gcc cgc Phe Ile Tyr Ser Gln Ala Asp Glu Asn Gln Lys Gly Lys Val Ala Arg 695 700 705	2468
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ttc tgg tat cac atg tcc ggc tct cat gtg ggt aca ctg agg gtc aaa Phe Trp Tyr His Met Ser Gly Ser His Val Gly Thr Leu Arg Val Lys 725 730 735	2564
cta cgc tac cag aag cca gag gaa tat gat caa ctg gtc tgg atg gtg Leu Arg Tyr Gln Lys Pro Glu Glu Tyr Asp Gln Leu Val Trp Met Val 740 745 750 755	2612

ggt ggg cac caa gga gac cac tgg aaa gaa gga cgt gtc ttg ctg cac Val Gly His Gln Gly Asp His Trp Lys Glu Gly Arg Val Leu Leu His 760 765 770	2660
aaa tct ctg aaa cta tat cag gtt att ttt gaa ggt gaa atc gga aaa Lys Ser Leu Lys Leu Tyr Gln Val Ile Phe Glu Gly Glu Ile Gly Lys 775 780 785	2708
gga aac ctt ggt gga att gct gtg gat gat atc agt att aac aac cat Gly Asn Leu Gly Gly Ile Ala Val Asp Asp Ile Ser Ile Asn Asn His 790 795 800	2756
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aca gaa att aaa att gat gaa aca ggg agc act cca gga tat gaa gga Thr Glu Ile Lys Ile Asp Glu Thr Gly Ser Thr Pro Gly Tyr Glu Gly 820 825 830 835	2852
gaa ggg gaa ggt gac aag aac atc tcc agg aag cca ggc aat gtg ctt Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly Asn Val Leu 840 845 850	2900
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His Pro Ser Glu Lys Cys Glu Trp Leu Ile Gln Ala Pro Glu Pro Tyr
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Gln Arg Ile Ile Ile Asn Phe Asn Pro His Phe Asp Leu Glu Asp Arg
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Asp Cys Lys Tyr Asp Tyr Val Glu Val Ile Asp Gly Glu Asn Glu Gly
 85 90 95

Gly Arg Leu Trp Gly Lys Phe Cys Gly Lys Ile Ala Pro Ser Pro Val
 100 105 110

Val Ser Ser Gly Pro Phe Leu Phe Ile Lys Phe Val Ser Asp Tyr Glu
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Thr His Gly Ala Gly Phe Ser Ile Arg Tyr Glu Ile Phe Lys Arg Gly
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Pro Glu Cys Ser Gln Asn Tyr Thr Ala Pro Thr Gly Val Ile Lys Ser
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Pro Gly Phe Pro Glu Lys Tyr Pro Asn Cys Leu Glu Cys Thr Tyr Ile
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Ile Phe Ala Pro Lys Met Ser Glu Ile Ile Leu Glu Phe Glu Ser Phe
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Asp Leu Glu Gln Asp Ser Asn Pro Pro Gly Gly Met Phe Cys Arg Tyr
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Asp Arg Leu Glu Ile Trp Asp Gly Phe Pro Glu Val Gly Pro His Ile
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Gly Arg Tyr Cys Gly Gln Lys Thr Pro Gly Arg Ile Arg Ser Ser Ser
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Gly Val Leu Ser Met Val Phe Tyr Thr Asp Ser Ala Ile Ala Lys Glu
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Gly Phe Ser Ala Asn Tyr Ser Val Leu Gln Ser Ser Ile Ser Glu Asp
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Phe Lys Cys Met Glu Ala Leu Gly Met Glu Ser Gly Glu Ile His Ser
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Asp Gln Ile Thr Ala Ser Ser Gln Tyr Gly Thr Asn Trp Ser Val Glu
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Arg Ser Arg Leu Asn Tyr Pro Glu Asn Gly Trp Thr Pro Gly Glu Asp
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Ser Tyr Lys Glu Trp Ile Gln Val Asp Leu Gly Leu Leu Arg Phe Val
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Thr Ala Val Gly Thr Gln Gly Ala Ile Ser Lys Glu Thr Lys Lys Lys
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Tyr Tyr Val Lys Thr Tyr Arg Val Asp Ile Ser Ser Asn Gly Glu Asp
 355 360 365

Trp Ile Ser Leu Lys Glu Gly Asn Lys Ala Ile Ile Phe Gln Gly Asn
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Thr Asn Pro Thr Asp Val Val Leu Gly Val Phe Ser Lys Pro Leu Ile
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Met Arg Phe Glu Val Tyr Gly Cys Lys Ile Thr Asp Tyr Pro Cys Ser
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Gly Met Leu Gly Met Val Ser Gly Leu Ile Ser Asp Ser Gln Ile Thr
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Ala Ser Asn Gln Ala Asp Arg Asn Trp Met Pro Glu Asn Ile Arg Leu
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Val Thr Ser Arg Thr Gly Trp Ala Leu Pro Pro Ser Pro His Pro Tyr
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Thr Asn Glu Trp Leu Gln Val Asp Leu Gly Asp Glu Lys Ile Val Arg
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Gly Val Ile Ile Gln Gly Gly Lys His Arg Glu Asn Lys Val Phe Met
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Arg Lys Phe Lys Ile Ala Tyr Ser Asn Asn Gly Ser Asp Trp Lys Thr
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Ile Met Asp Asp Ser Lys Arg Lys Ala Lys Ser Phe Glu Gly Asn Asn
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Asn Tyr Asp Thr Pro Glu Leu Arg Thr Phe Ser Pro Leu Ser Thr Arg
 545 550 555 560

Phe Ile Arg Ile Tyr Pro Glu Arg Ala Thr His Ser Gly Leu Gly Leu
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Arg Met Glu Leu Leu Gly Cys Glu Val Glu Ala Pro Thr Ala Gly Pro
 580 585 590

Thr Thr Pro Asn Gly Asn Pro Val His Glu Cys Asp Asp Asp Gln Ala
 595 600 605

Asn Cys His Ser Gly Thr Gly Asp Asp Phe Gln Leu Thr Gly Gly Thr
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Thr Val Leu Ala Thr Glu Lys Pro Thr Ile Ile Asp Ser Thr Ile Gln
 625 630 635 640

Ser Glu Phe Pro Thr Tyr Gly Phe Asn Cys Glu Phe Gly Trp Gly Ser
 645 650 655

His Lys Thr Phe Cys His Trp Glu His Asp Ser His Ala Gln Leu Arg
 660 665 670

Trp Ser Val Leu Thr Ser Lys Thr Gly Pro Ile Gln Asp His Thr Gly
 675 680 685

Asp Gly Asn Phe Ile Tyr Ser Gln Ala Asp Glu Asn Gln Lys Gly Lys
 690 695 700

Val Ala Arg Leu Val Ser Pro Val Val Tyr Ser Gln Ser Ser Ala His
 705 710 715 720

Cys Met Thr Phe Trp Tyr His Met Ser Gly Ser His Val Gly Thr Leu
725 730 735

Arg Val Lys Leu Arg Tyr Gln Lys Pro Glu Glu Tyr Asp Gln Leu Val
740 745 750

Trp Met Val Val Gly His Gln Gly Asp His Trp Lys Glu Gly Arg Val
755 760 765

Leu Leu His Lys Ser Leu Lys Leu Tyr Gln Val Ile Phe Glu Gly Glu
770 775 780

Ile Gly Lys Gly Asn Leu Gly Gly Ile Ala Val Asp Asp Ile Ser Ile
785 790 795 800

Asn Asn His Ile Ser Gln Glu Asp Cys Ala Lys Pro Thr Asp Leu Asp
805 810 815

Lys Lys Asn Thr Glu Ile Lys Ile Asp Glu Thr Gly Ser Thr Pro Gly
820 825 830

Tyr Glu Gly Glu Gly Glu Gly Asp Lys Asn Ile Ser Arg Lys Pro Gly
835 840 845

Asn Val Leu Lys Thr Leu Asp Pro Ile Leu Ile Thr Ile Ile Ala Met
850 855 860

Ser Ala Leu Gly Val Leu Leu Gly Ala Val Cys Gly Val Val Leu Tyr
865 870 875 880

Cys Ala Cys Trp His Asn Gly Met Ser Glu Arg Asn Leu Ser Ala Leu
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Glu Asn Tyr Asn Phe Glu Leu Val Asp Gly Val Lys Leu Lys Lys Asp
900 905 910

Lys Leu Asn Pro Gln Ser Asn Tyr Ser Glu Ala
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tgtcagttag cgcttctgag atcacacagc tgcctagggg ccgtgtgatg cccagggcaa 180

ttcttggtt tgatttttat tattattact attattttgc gttcagcttt cgggaaaccc 240

tcgtgatgtt gtaggataaa ggaaatgaca ctttgaggaa ctggagagaa catacacgcg 300

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caagagctat ctctatgag gtggagatat tccagcaaga ataaaggatga agacagactg 420

actgccagga cccaggagga aaacgttgat cgttagagac ctttgcagaa gacaccacca 480

ggaggaaaat tagagaggaa aaacacaaag acataattat aggagatccc acaaacctag 540

cccgaggagag agcctctctg tcaaaa atg gat atg ttt cct ctt acc tgg gtt 593

Met Asp Met Phe Pro Leu Thr Trp Val

1 5

ttc tta gct ctg tac ttt tca gga cac gaa gtg aga agc cag caa gat 641

Phe Leu Ala Leu Tyr Phe Ser Gly His Glu Val Arg Ser Gln Gln Asp

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cca ccc tgc gga ggt cgg ccg aat tcc aaa gat gct ggc tac atc act 689

Pro Pro Cys Gly Gly Arg Pro Asn Ser Lys Asp Ala Gly Tyr Ile Thr

30 35 40

tcc cca ggc tac ccc cag gac tat ccc tcc cac cag aac tgt gag tgg 737

Ser Pro Gly Tyr Pro Gln Asp Tyr Pro Ser His Gln Asn Cys Glu Trp

45 50 55

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Ile Val Tyr Ala Pro Glu Pro Asn Gln Lys Ile Val Leu Asn Phe Asn

60 65 70

cct cac ttt gaa atc gag aaa cac gac tgc aag tat gac ttc att gag 833

Pro His Phe Glu Ile Glu Lys His Asp Cys Lys Tyr Asp Phe Ile Glu

75 80 85

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Ile Arg Asp Gly Asp Ser Glu Ser Ala Asp Leu Leu Gly Lys His Cys

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ggg aac atc gcc ccg ccc acc atc atc tcc tca ggc tcc gtg tta tac 929

Gly Asn Ile Ala Pro Pro Thr Ile Ile Ser Ser Gly Ser Val Leu Tyr

110 115 120

atc aag ttc acc tca gac tac gcc cgg cag ggg gca ggt ttc tct cta 977

Ile Lys Phe Thr Ser Asp Tyr Ala Arg Gln Gly Ala Gly Phe Ser Leu

125 130 135

cgc tat gag atc ttc aaa aca ggc tct gaa gat tgt tcc aag aac ttt 1025

Arg Tyr Glu Ile Phe Lys Thr Gly Ser Glu Asp Cys Ser Lys Asn Phe

140 145 150

aca agc ccc aat ggg acc att gaa tct cca ggg ttt cca gag aag tat 1073

Thr Ser Pro Asn Gly Thr Ile Glu Ser Pro Gly Phe Pro Glu Lys Tyr

155 160 165

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Glu	Ile	Ile	Leu	Gln	Phe	Leu	Thr	Phe	Asp	Leu	Glu	His	Asp	Pro	Leu	
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caa	gtg	ggg	gaa	gga	gac	tgt	aaa	tat	gac	tgg	ctg	gac	atc	tgg	gat	1217
Gln	Val	Gly	Glu	Gly	Asp	Cys	Lys	Tyr	Asp	Trp	Leu	Asp	Ile	Trp	Asp	
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Gly	Ile	Pro	His	Val	Gly	Pro	Leu	Ile	Gly	Lys	Tyr	Cys	Gly	Thr	Lys	
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Thr	Pro	Ser	Lys	Leu	Arg	Ser	Ser	Thr	Gly	Ile	Leu	Ser	Leu	Thr	Phe	
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cac	acg	gac	atg	gca	gtg	gcc	aag	gat	ggc	ttc	tcc	gca	cgt	tac	tat	1361
His	Thr	Asp	Met	Ala	Val	Ala	Lys	Asp	Gly	Phe	Ser	Ala	Arg	Tyr	Tyr	
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Leu	Ile	His	Gln	Glu	Pro	Pro	Glu	Asn	Phe	Gln	Cys	Asn	Val	Pro	Leu	
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Gln	Val	Asp	Leu	Arg	Phe	Leu	Thr	Met	Leu	Thr	Ala	Ile	Ala	Thr	Gln	
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Gly	Ala	Ile	Ser	Arg	Glu	Thr	Gln	Lys	Gly	Tyr	Tyr	Val	Lys	Ser	Tyr	
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Lys	Leu	Glu	Val	Ser	Thr	Asn	Gly	Glu	Asp	Trp	Met	Val	Tyr	Arg	His	
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Gly	Lys	Asn	His	Lys	Ile	Phe	Gln	Ala	Asn	Asn	Asp	Ala	Thr	Glu	Val	
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gtg	cta	aac	aag	ctc	cac	atg	cca	ctg	ctg	act	cgg	ttc	atc	agg	atc	1793
Val	Leu	Asn	Lys	Leu	His	Met	Pro	Leu	Leu	Thr	Arg	Phe	Ile	Arg	Ile	
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cgc	ccg	cag	acg	tgg	cat	ttg	ggc	att	gcc	ctt	cgc	ctg	gag	ctc	ttt	1841
Arg	Pro	Gln	Thr	Trp	His	Leu	Gly	Ile	Ala	Leu	Arg	Leu	Glu	Leu	Phe	
410					415					420					425	

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Tyr Pro Ser His Gln Asn Cys Glu Trp Ile Val Tyr Ala Pro Glu Pro
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Asn Gln Lys Ile Val Leu Asn Phe Asn Pro His Phe Glu Ile Glu Lys
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His Asp Cys Lys Tyr Asp Phe Ile Glu Ile Arg Asp Gly Asp Ser Glu
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Ser Ala Asp Leu Leu Gly Lys His Cys Gly Asn Ile Ala Pro Pro Thr
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Ile Ile Ser Ser Gly Ser Val Leu Tyr Ile Lys Phe Thr Ser Asp Tyr
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Ala Arg Gln Gly Ala Gly Phe Ser Leu Arg Tyr Glu Ile Phe Lys Thr
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Gly Ser Glu Asp Cys Ser Lys Asn Phe Thr Ser Pro Asn Gly Thr Ile
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Glu Ser Pro Gly Phe Pro Glu Lys Tyr Pro His Asn Leu Asp Cys Thr
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Phe Thr Ile Leu Ala Lys Pro Arg Met Glu Ile Ile Leu Gln Phe Leu
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Thr Phe Asp Leu Glu His Asp Pro Leu Gln Val Gly Glu Gly Asp Cys
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Lys Tyr Asp Trp Leu Asp Ile Trp Asp Gly Ile Pro His Val Gly Pro
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Leu Ile Gly Lys Tyr Cys Gly Thr Lys Thr Pro Ser Lys Leu Arg Ser
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Ser Thr Gly Ile Leu Ser Leu Thr Phe His Thr Asp Met Ala Val Ala
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Lys Asp Gly Phe Ser Ala Arg Tyr Tyr Leu Ile His Gln Glu Pro Pro
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Glu Asn Phe Gln Cys Asn Val Pro Leu Gly Met Glu Ser Gly Arg Ile
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 Thr Pro Gln Gln Ser Arg Leu His Gly Asp Asp Asn Gly Trp Thr Pro
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 Thr Met Leu Thr Ala Ile Ala Thr Gln Gly Ala Ile Ser Arg Glu Thr
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 Gln Lys Gly Tyr Tyr Val Lys Ser Tyr Lys Leu Glu Val Ser Thr Asn
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 Gly Glu Asp Trp Met Val Tyr Arg His Gly Lys Asn His Lys Ile Phe
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 Ser Leu Asn Gly Lys Asp Trp Glu Tyr Ile Gln Asp Pro Arg Thr Gln
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Gln Thr Lys Leu Phe Glu Gly Asn Met His Tyr Asp Thr Pro Asp Ile
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Arg Trp Ser Pro Ala Gly Ile Gly Met Arg Leu Glu Val Leu Gly Cys
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Asp Trp Thr Asp Ser Lys Pro Thr Val Glu Thr Leu Gly Pro Thr Val
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Lys Ser Glu Glu Thr Thr Thr Pro Tyr Pro Met Asp Glu Asp Ala Thr
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Glu Cys Gly Glu Asn Cys Ser Phe Glu Asp Asp Lys Asp Leu Gln Leu
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Pro Ser Gly Phe Asn Cys Asn Phe Asp Phe Pro Glu Glu Thr Cys Gly
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Trp Val Tyr Asp His Ala Lys Trp Leu Arg Ser Thr Trp Ile Ser Ser
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Ala Asn Pro Asn Asp Arg Thr Phe Pro Asp Asp Lys Asn Phe Leu Lys
 675 680 685

Leu Gln Ser Asp Gly Arg Arg Glu Gly Gln Tyr Gly Arg Leu Ile Ser
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Pro Pro Val His Leu Pro Arg Ser Pro Val Cys Met Glu Phe Gln Tyr
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Ser Gln Glu Ser Lys Leu Leu Trp Val Ile Arg Glu Asp Gln Gly Ser
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Glu Trp Lys His Gly Arg Ile Ile Leu Pro Ser Tyr Asp Met Glu Tyr
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Gln Ile Val Phe Glu Gly Val Ile Gly Lys Gly Arg Ser Gly Glu Ile
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Ser Gly Asp Asp Ile Arg Ile Ser Thr Asp Val Pro Leu Glu Asn Cys
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Met Glu Pro Ile Ser Ala Phe Ala Val Asp Ile Pro Glu Thr His Gly
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Gly Glu Gly Tyr Glu Asp Glu Ile Asp Asp Glu Tyr Glu Gly Asp Trp
820 825 830

Ser Asn Ser Ser Ser Ser Thr Ser Gly Ala Gly Asp Pro Ser Ser Gly
835 840 845

Lys Glu Lys Ser Trp Leu Tyr Thr Leu Asp Pro Ile Leu Ile Thr Ile
850 855 860

Ile Ala Met Ser Ser Leu Gly Val Leu Leu Gly Ala Thr Cys Ala Gly
865 870 875 880

Leu Leu Leu Tyr Cys Thr Cys Ser Tyr Ser Gly Leu Ser Ser Arg Ser
885 890 895

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Gly Val Leu Leu Thr Ala Arg Ala Asn Tyr Gln Asn Gly Lys Asn Asn
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Val Pro Arg Leu Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn
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Val Ile Thr Phe Asn Gly Leu Ala Asn Ser Ser Ser Tyr His Thr Phe
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Leu Leu Asp Glu Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His
65 70 75

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cgt cgg caa agg cca gga cat acc cca ggg aac agt aac aaa tgg aag Arg Arg Gln Arg Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys 735 740 745	2259
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Asp	Leu	Val	Asn	Ile	Lys	Asp	Phe	Gln	Lys	Ile	Val	Trp	Pro	Val	Ser
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Leu	Tyr	Ala	Cys	Gly	Thr	Gly	Ala	Phe	His	Pro	Ile	Cys	Thr	Tyr	Ile
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Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys
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Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly Ile Asp Thr His
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Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe Lys Asp Pro Lys
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Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser Asn Ile Phe Lys
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Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr Gln Trp Val Pro
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Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro Val Phe Pro Met
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Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn Tyr Gln Phe Thr
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Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly Gln Tyr Asp Val
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Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys Val Val Ser Ile
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Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met Glu Leu Ser Thr
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Lys Gln Gln Gln Leu Tyr Ile Gly Ser Thr Ala Gly Val Ala Gln Leu
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cccgccctcg ccctcactgc tgactcctct tccagatcct ggggcagagt ccagggcagc      180
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Ala Val Gly Leu Gly Ser Ala Ala Pro Ser Pro Pro Arg Leu Arg Leu
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Ser Phe Gln Glu Leu Gln Ala Trp His Gly Leu Gln Thr Phe Ser Leu
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Glu Arg Thr Cys Cys Tyr Gln Ala Leu Leu Val Asp Glu Glu Arg Gly
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Arg Leu Phe Val Gly Ala Glu Asn His Val Ala Ser Leu Asn Leu Asp
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Asn Ile Ser Lys Arg Ala Lys Lys Leu Ala Trp Pro Ala Pro Val Glu
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tgg cga gag gag tgc aac tgg gca ggg aag gac att ggt act gag tgc      574
Trp Arg Glu Glu Cys Asn Trp Ala Gly Lys Asp Ile Gly Thr Glu Cys
                    100                      105                      110

atg aac ttc gtg aag ttg ctg cat gcc tac aac cgc acc cat ttg ctg      622
Met Asn Phe Val Lys Leu Leu His Ala Tyr Asn Arg Thr His Leu Leu
                    115                      120                      125

gcc tgt ggc acg gga gcc ttc cac cca acc tgt gcc ttt gtg gaa gtg      670
Ala Cys Gly Thr Gly Ala Phe His Pro Thr Cys Ala Phe Val Glu Val
130                      135                      140                      145

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Glu Asp Gly Lys Gly Lys Ser Pro Tyr Asp Pro Arg His Arg Ala Ala	
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Ser Val Leu Val Gly Glu Glu Leu Tyr Ser Gly Val Ala Ala Asp Leu	
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Leu Arg Thr Glu Pro His Asp Ser Arg Trp Leu Asn Glu Pro Lys Phe	
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Val Lys Val Phe Trp Ile Pro Glu Ser Glu Asn Pro Asp Asp Asp Lys	
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			260					265					270				
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Val	Cys	Val	Tyr	His	Leu	Ser	Asp	Ile	Gln	Thr	Val	Phe	Asn	Gly	Pro		
			340					345					350				
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Ala Pro Lys Ser Pro Gln Ala Ser Ile Lys Trp Leu Leu Gln Lys Asp
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Lys Asp Arg Arg Lys Glu Val Lys Leu Asn Glu Arg Ile Ile Ala Thr
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Ser Gln Gly Leu Leu Ile Arg Ser Val Gln Gly Ser Asp Gln Gly Leu
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Ile Asn Phe Lys Val Leu Asp Ser Glu Met Val Ala Val Val Thr Asp
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675 680 685

His Pro Lys Asp Ile Met Gly Ala Phe Ser His Ser Glu Met Gln Met
690 695 700

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705 710 715 720

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Asn Phe Gln Arg Val Glu Glu Tyr Cys Glu Lys Val Trp Cys Thr Asp
 725 730 735

Arg Lys Arg Lys Lys Leu Lys Met Ser Pro Ser Lys Trp Lys Tyr Ala
740 745 750

Asn Pro Gln Glu Lys Lys Leu Arg Ser Lys Pro Glu His Tyr Arg Leu
755 760 765

Pro Arg His Thr Leu Asp Ser
770 775

<210> 17
<211> 2719
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (79)..(2436)

<400> 17
cgggggcccag gccccgccgc tgcggaagag gtttctagag agtggagcct gcttctctggg 60

ccctaggccc ctcccaca atg ctt gtc gcc ggt ctt ctt ctc tgg gct tcc 111
Met Leu Val Ala Gly Leu Leu Leu Trp Ala Ser
1 5 10

cta ctg acc ggg gcc tgg cca tcc ttc ccc acc cag gac cac ctc ccg 159
Leu Leu Thr Gly Ala Trp Pro Ser Phe Pro Thr Gln Asp His Leu Pro
15 20 25

gcc acg ccc cgg gtc cgg ctc tca ttc aaa gag ctg aag gcc aca ggc 207
Ala Thr Pro Arg Val Arg Leu Ser Phe Lys Glu Leu Lys Ala Thr Gly
30 35 40

acc gcc cac ttc ttc aac ttc ctg ctc aac aca acc gac tac cga atc 255
Thr Ala His Phe Phe Asn Phe Leu Leu Asn Thr Thr Asp Tyr Arg Ile
45 50 55

ttg ctc aag gac gag gac cac gac cgc atg tac gtg ggc agc aag gac 303
Leu Leu Lys Asp Glu Asp His Asp Arg Met Tyr Val Gly Ser Lys Asp
60 65 70 75

tac gtg ctg tcc ctg gac ctg cac gac atc aac cgc gag ccc ctc att 351
Tyr Val Leu Ser Leu Asp Leu His Asp Ile Asn Arg Glu Pro Leu Ile
80 85 90

ata cac tgg gca gcc tcc cca cag cgc atc gag gaa tgc gtg ctc tca 399
Ile His Trp Ala Ala Ser Pro Gln Arg Ile Glu Glu Cys Val Leu Ser
95 100 105

ggc aag gat gtc aac ggc gag tgt ggg aac ttc gtc agg ctc atc cag 447
Gly Lys Asp Val Asn Gly Glu Cys Gly Asn Phe Val Arg Leu Ile Gln
110 115 120

ccc tgg aac cga aca cac ctg tat gtg tgc ggg aca ggt gcc tac aac 495
Pro Trp Asn Arg Thr His Leu Tyr Val Cys Gly Thr Gly Ala Tyr Asn
125 130 135

ccc atg tgc acc tat gtg aac cgc gga cgc cgc gcc cag gcc aca cca 543
Pro Met Cys Thr Tyr Val Asn Arg Gly Arg Arg Ala Gln Ala Thr Pro
140 145 150 155

tgg acc cag act cag gcg gtc aga ggc cgc ggc agc aga gcc acg gat Trp Thr Gln Thr Gln Ala Val Arg Gly Arg Gly Ser Arg Ala Thr Asp 160 165 170	591
ggg gcc ctc cgc ccg atg ccc aca gcc cca cgc cag gat tac atc ttc Gly Ala Leu Arg Pro Met Pro Thr Ala Pro Arg Gln Asp Tyr Ile Phe 175 180 185	639
tac ctg gag cct gag cga ctc gag tca ggg aag ggc aag tgt ccg tac Tyr Leu Glu Pro Glu Arg Leu Glu Ser Gly Lys Gly Lys Cys Pro Tyr 190 195 200	687
gat ccc aag ctg gac aca gca tgc gcc ctc atc aat gag gag ctc tat Asp Pro Lys Leu Asp Thr Ala Ser Ala Leu Ile Asn Glu Glu Leu Tyr 205 210 215	735
gct ggt gtg tac atc gat ttt atg ggc act gat gca gcc atc ttc cgc Ala Gly Val Tyr Ile Asp Phe Met Gly Thr Asp Ala Ala Ile Phe Arg 220 225 230 235	783
aca ctt gga aag cag aca gcc atg cgc acg gat cag tac aac tcc cgg Thr Leu Gly Lys Gln Thr Ala Met Arg Thr Asp Gln Tyr Asn Ser Arg 240 245 250	831
tgg ctg aac gac ccg tgc ttc atc cat gct gag ctc att cct gac agt Trp Leu Asn Asp Pro Ser Phe Ile His Ala Glu Leu Ile Pro Asp Ser 255 260 265	879
gcg gag cgc aat gat gat aag ctt tac ttc ttc ttc cgt gag cgg tgc Ala Glu Arg Asn Asp Asp Lys Leu Tyr Phe Phe Phe Arg Glu Arg Ser 270 275 280	927
gca gag gcg ccg cag agc ccc gcg gtg tac gcc cgc atc ggg cgc att Ala Glu Ala Pro Gln Ser Pro Ala Val Tyr Ala Arg Ile Gly Arg Ile 285 290 295	975
tgc ctg aac gat gac ggt ggt cac tgt tgc ctg gtc aac aag tgg agc Cys Leu Asn Asp Asp Gly Gly His Cys Cys Leu Val Asn Lys Trp Ser 300 305 310 315	1023
aca ttc ctg aag gcg ccg ctc gtc tgc tct gtc ccg ggc gag gat ggc Thr Phe Leu Lys Ala Arg Leu Val Cys Ser Val Pro Gly Glu Asp Gly 320 325 330	1071
att gag act cac ttt gat gag ctc cag gac gtg ttt gtc cag cag acc Ile Glu Thr His Phe Asp Glu Leu Gln Asp Val Phe Val Gln Gln Thr 335 340 345	1119
cag gac gtg agg aac cct gtc att tac gct gtc ttt acc tcc tct ggc Gln Asp Val Arg Asn Pro Val Ile Tyr Ala Val Phe Thr Ser Ser Gly 350 355 360	1167
tcc gtg ttc cga ggc tct gcc gtg tgt gtc tac tcc atg gct gat att Ser Val Phe Arg Gly Ser Ala Val Cys Val Tyr Ser Met Ala Asp Ile 365 370 375	1215
cgc atg gtc ttc aac ggg ccc ttt gcc cac aaa gag ggg ccc aac tac Arg Met Val Phe Asn Gly Pro Phe Ala His Lys Glu Gly Pro Asn Tyr 380 385 390 395	1263
cag tgg atg ccc ttc tca ggg aag atg ccc tac cca cgg ccg ggc acg Gln Trp Met Pro Phe Ser Gly Lys Met Pro Tyr Pro Arg Pro Gly Thr 400 405 410	1311

tgc cct ggt gga acc ttc acg cca tct atg aag tcc acc aag gat tat	1359
Cys Pro Gly Gly Thr Phe Thr Pro Ser Met Lys Ser Thr Lys Asp Tyr	
415 420 425	
cct gat gag gtg atc aac ttc atg cgc agc cac cca ctc atg tac cag	1407
Pro Asp Glu Val Ile Asn Phe Met Arg Ser His Pro Leu Met Tyr Gln	
430 435 440	
gcc gtg tac cct ctg cag cgg cgg ccc ctg gta gtc cgc aca ggt gct	1455
Ala Val Tyr Pro Leu Gln Arg Arg Pro Leu Val Val Arg Thr Gly Ala	
445 450 455	
ccc tac cgc ctt acc act att gcc gtg gac cag gtg gat gca ggc gac	1503
Pro Tyr Arg Leu Thr Thr Ile Ala Val Asp Gln Val Asp Ala Gly Asp	
460 465 470 475	
ggg cgc tat gag gtg ctt ttc ctg ggc aca gac cgc ggg aca gtg cag	1551
Gly Arg Tyr Glu Val Leu Phe Leu Gly Thr Asp Arg Gly Thr Val Gln	
480 485 490	
aag gtc att gtg ctg ccc aag gat gac cag gag atg gag gag ctc atg	1599
Lys Val Ile Val Leu Pro Lys Asp Asp Gln Glu Met Glu Glu Leu Met	
495 500 505	
ctg gag gag gtg gag gtc ttc aag gat cca gca ccc gtc aag acc atg	1647
Leu Glu Glu Val Glu Val Phe Lys Asp Pro Ala Pro Val Lys Thr Met	
510 515 520	
acc atc tct tct aag agg caa caa ctc tac gtg gcg tca gcc gtg ggt	1695
Thr Ile Ser Ser Lys Arg Gln Gln Leu Tyr Val Ala Ser Ala Val Gly	
525 530 535	
gtc aca cac ctg agc ctg cac cgc tgc cag gcg tat ggg gct gcc tgt	1743
Val Thr His Leu Ser Leu His Arg Cys Gln Ala Tyr Gly Ala Ala Cys	
540 545 550 555	
gct gac tgc tgc ctt gcc cgg gac cct tac tgt gcc tgg gat ggc cag	1791
Ala Asp Cys Cys Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Gln	
560 565 570	
gcc tgc tcc cgc tat aca gca tcc tcc aag agg cgg agc cgc cgg cag	1839
Ala Cys Ser Arg Tyr Thr Ala Ser Ser Lys Arg Arg Ser Arg Gln	
575 580 585	
gac gtc cgg cac gga aac ccc atc agg cag tgc cgt ggg ttc aac tcc	1887
Asp Val Arg His Gly Asn Pro Ile Arg Gln Cys Arg Gly Phe Asn Ser	
590 595 600	
aat gcc aac aag aat gcc gtg gag tct gtg cag tat ggc gtg gcc ggc	1935
Asn Ala Asn Lys Asn Ala Val Glu Ser Val Gln Tyr Gly Val Ala Gly	
605 610 615	
agc gca gcc ttc ctt gag tgc cag ccc cgc tgc ccc caa gcc act gtt	1983
Ser Ala Ala Phe Leu Glu Cys Gln Pro Arg Ser Pro Gln Ala Thr Val	
620 625 630 635	
aag tgg ctg ttc cag cga gat cct ggt gac cgg cgc cga gag att cgt	2031
Lys Trp Leu Phe Gln Arg Asp Pro Gly Asp Arg Arg Arg Glu Ile Arg	
640 645 650	
gca gag gac cgc ttc ctg cgc aca gag cag ggc ttg ttg ctc cgt gca	2079
Ala Glu Asp Arg Phe Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala	
655 660 665	

ctg cag ctc agc gat cgt ggc ctc tac tcc tgc aca gcc act gag aac	2127
Leu Gln Leu Ser Asp Arg Gly Leu Tyr Ser Cys Thr Ala Thr Glu Asn	
670 675 680	
aac ttt aag cac gtc gtc aca cga gtg cag ctg cat gta ctg ggc cgg	2175
Asn Phe Lys His Val Val Thr Arg Val Gln Leu His Val Leu Gly Arg	
685 690 695	
gac gcc gtc cat gct gcc ctc ttc cca cca ctg tcc atg agc gcc ccg	2223
Asp Ala Val His Ala Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro	
700 705 710 715	
cca ccc cca ggc gca ggc ccc cca acg cct cct tac cag gag tta gcc	2271
Pro Pro Pro Gly Ala Gly Pro Pro Thr Pro Pro Tyr Gln Glu Leu Ala	
720 725 730	
cag ctg ctg gcc cag cca gaa gtg ggc ctc atc cac cag tac tgc cag	2319
Gln Leu Leu Ala Gln Pro Glu Val Gly Leu Ile His Gln Tyr Cys Gln	
735 740 745	
ggt tac tgg cgc cat gtg ccc ccc agc ccc agg gag gct cca ggg gca	2367
Gly Tyr Trp Arg His Val Pro Pro Ser Pro Arg Glu Ala Pro Gly Ala	
750 755 760	
ccc cgg tct cct gag ccc cag gac cag aaa aag ccc cgg aac cgc cgg	2415
Pro Arg Ser Pro Glu Pro Gln Asp Gln Lys Lys Pro Arg Asn Arg Arg	
765 770 775	
cac cac cct ccg gac aca tga ggccagctgc ctgtgcctgc catgggccag	2466
His His Pro Pro Asp Thr	
780 785	
gctaggcctt ggtccctttt aatataaaag atatatatat atatatatat atatattaaa	2526
atatcgggggt ggggggtgat tggaagggag ggaggtggcc ttcccaatgc gcgttattcg	2586
gggttattga agaataatat tgcaagtgac agccagaagt agactttctg tcctcacacc	2646
gaagaacccg agtgagcagg agggagggag agacgcgaag agaccttttt tcctttttgg	2706
agaccttgtc cgc	2719

<210> 18
 <211> 785
 <212> PRT
 <213> Homo sapiens

<400> 18

Met Leu Val Ala Gly Leu Leu Leu Trp Ala Ser Leu Leu Thr Gly Ala
1 5 10 15

Trp Pro Ser Phe Pro Thr Gln Asp His Leu Pro Ala Thr Pro Arg Val
20 25 30

Arg Leu Ser Phe Lys Glu Leu Lys Ala Thr Gly Thr Ala His Phe Phe
35 40 45

Asn Phe Leu Leu Asn Thr Thr Asp Tyr Arg Ile Leu Leu Lys Asp Glu

Gly	Gly	His	Cys	Cys	Leu	Val	Asn	Lys	Trp	Ser	Thr	Phe	Leu	Lys	Ala	305	310	315	320
Arg	Leu	Val	Cys	Ser	Val	Pro	Gly	Glu	Asp	Gly	Ile	Glu	Thr	His	Phe	325	330	335	
Asp	Glu	Leu	Gln	Asp	Val	Phe	Val	Gln	Gln	Thr	Gln	Asp	Val	Arg	Asn	340	345	350	
Pro	Val	Ile	Tyr	Ala	Val	Phe	Thr	Ser	Ser	Gly	Ser	Val	Phe	Arg	Gly	355	360	365	
Ser	Ala	Val	Cys	Val	Tyr	Ser	Met	Ala	Asp	Ile	Arg	Met	Val	Phe	Asn	370	375	380	
Gly	Pro	Phe	Ala	His	Lys	Glu	Gly	Pro	Asn	Tyr	Gln	Trp	Met	Pro	Phe	385	390	395	400
Ser	Gly	Lys	Met	Pro	Tyr	Pro	Arg	Pro	Gly	Thr	Cys	Pro	Gly	Gly	Thr	405	410	415	
Phe	Thr	Pro	Ser	Met	Lys	Ser	Thr	Lys	Asp	Tyr	Pro	Asp	Glu	Val	Ile	420	425	430	
Asn	Phe	Met	Arg	Ser	His	Pro	Leu	Met	Tyr	Gln	Ala	Val	Tyr	Pro	Leu	435	440	445	
Gln	Arg	Arg	Pro	Leu	Val	Val	Arg	Thr	Gly	Ala	Pro	Tyr	Arg	Leu	Thr	450	455	460	
Thr	Ile	Ala	Val	Asp	Gln	Val	Asp	Ala	Gly	Asp	Gly	Arg	Tyr	Glu	Val	465	470	475	480
Leu	Phe	Leu	Gly	Thr	Asp	Arg	Gly	Thr	Val	Gln	Lys	Val	Ile	Val	Leu	485	490	495	
Pro	Lys	Asp	Asp	Gln	Glu	Met	Glu	Glu	Leu	Met	Leu	Glu	Glu	Val	Glu	500	505	510	
Val	Phe	Lys	Asp	Pro	Ala	Pro	Val	Lys	Thr	Met	Thr	Ile	Ser	Ser	Lys	515	520	525	
Arg	Gln	Gln	Leu	Tyr	Val	Ala	Ser	Ala	Val	Gly	Val	Thr	His	Leu	Ser	530	535	540	
Leu	His	Arg	Cys	Gln	Ala	Tyr	Gly	Ala	Ala	Cys	Ala	Asp	Cys	Cys	Leu	545	550	555	560

Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Gln Ala Cys Ser Arg Tyr
565 570 575

Thr Ala Ser Ser Lys Arg Arg Ser Arg Arg Gln Asp Val Arg His Gly
580 585 590

Asn Pro Ile Arg Gln Cys Arg Gly Phe Asn Ser Asn Ala Asn Lys Asn
595 600 605

Ala Val Glu Ser Val Gln Tyr Gly Val Ala Gly Ser Ala Ala Phe Leu
610 615 620

Glu Cys Gln Pro Arg Ser Pro Gln Ala Thr Val Lys Trp Leu Phe Gln
625 630 635 640

Arg Asp Pro Gly Asp Arg Arg Arg Glu Ile Arg Ala Glu Asp Arg Phe
645 650 655

Leu Arg Thr Glu Gln Gly Leu Leu Leu Arg Ala Leu Gln Leu Ser Asp
660 665 670

Arg Gly Leu Tyr Ser Cys Thr Ala Thr Glu Asn Asn Phe Lys His Val
675 680 685

Val Thr Arg Val Gln Leu His Val Leu Gly Arg Asp Ala Val His Ala
690 695 700

Ala Leu Phe Pro Pro Leu Ser Met Ser Ala Pro Pro Pro Pro Gly Ala
705 710 715 720

Gly Pro Pro Thr Pro Pro Tyr Gln Glu Leu Ala Gln Leu Leu Ala Gln
725 730 735

Pro Glu Val Gly Leu Ile His Gln Tyr Cys Gln Gly Tyr Trp Arg His
740 745 750

Val Pro Pro Ser Pro Arg Glu Ala Pro Gly Ala Pro Arg Ser Pro Glu
755 760 765

Pro Gln Asp Gln Lys Lys Pro Arg Asn Arg Arg His His Pro Pro Asp
770 775 780

Thr
785

<210> 19
<211> 649
<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (17)..(592)

<220>

<221> misc_feature

<222> (17)..(94)

<223> Signal peptide

<400> 19

tcgggcctcc gaaacc atg aac ttt ctg ctg tct tgg gtg cat tgg agc ctt	52
Met Asn Phe Leu Leu Ser Trp Val His Trp Ser Leu	
1 5 10	

gcc ttg ctg ctc tac ctc cac cat gcc aag tgg tcc cag gct gca ccc	100
Ala Leu Leu Leu Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro	
15 20 25	

atg gca gaa gga gga ggg cag aat cat cac gaa gtg gtg aag ttc atg	148
Met Ala Glu Gly Gly Gly Gln Asn His His Glu Val Val Lys Phe Met	
30 35 40	

gat gtc tat cag cgc agc tac tgc cat cca atc gag acc ctg gtg gac	196
Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp	
45 50 55 60	

atc ttc cag gag tac cct gat gag atc gag tac atc ttc aag cca tcc	244
Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser	
65 70 75	

tgt gtg ccc ctg atg cga tgc ggg ggc tgc tgc aat gac gag ggc ctg	292
Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu	
80 85 90	

gag tgt gtg ccc act gag gag tcc aac atc acc atg cag att atg cgg	340
Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg	
95 100 105	

atc aaa cct cac caa ggc cag cac ata gga gag atg agc ttc cta cag	388
Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln	
110 115 120	

cac aac aaa tgt gaa tgc aga cca aag aaa gat aga gca aga caa gaa	436
His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu	
125 130 135 140	

aat ccc tgt ggg cct tgc tca gag cgg aga aag cat ttg ttt gta caa	484
Asn Pro Cys Gly Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln	
145 150 155	

gat ccg cag acg tgt aaa tgt tcc tgc aaa aac aca gac tcg cgt tgc	532
Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys	
160 165 170	

aag gcg agg cag ctt gag tta aac gaa cgt act tgc aga tgt gac aag	580
Lys Ala Arg Gln Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys	
175 180 185	

ccg agg cgg tga gccggggcagg aggaaggagc ctcctcagc gtttcgggaa 632
 Pro Arg Arg
 190

ccagatctct caccagg 649

<210> 20
 <211> 191
 <212> PRT
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (17)..(94)
 <223> Signal peptide

<400> 20

Met Asn Phe Leu Leu Ser Trp Val His Trp Ser Leu Ala Leu Leu Leu
 1 5 10 15

Tyr Leu His His Ala Lys Trp Ser Gln Ala Ala Pro Met Ala Glu Gly
 20 25 30

Gly Gly Gln Asn His His Glu Val Val Lys Phe Met Asp Val Tyr Gln
 35 40 45

Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp Ile Phe Gln Glu
 50 55 60

Tyr Pro Asp Glu Ile Glu Tyr Ile Phe Lys Pro Ser Cys Val Pro Leu
 65 70 75 80

Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu Glu Cys Val Pro
 85 90 95

Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg Ile Lys Pro His
 100 105 110

Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln His Asn Lys Cys
 115 120 125

Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu Asn Pro Cys Gly
 130 135 140

Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr
 145 150 155 160

Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln
 165 170 175

Leu Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg
180 185 190

<210> 21
<211> 755
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (5)..(628)

<400> 21
cacc atg agc cct ctg ctc cgc cgc ctg ctg ctc gcc gca ctc ctg cag 49
Met Ser Pro Leu Leu Arg Arg Leu Leu Leu Ala Ala Leu Leu Gln
1 5 10 15
ctg gcc ccc gcc cag gcc cct gtc tcc cag cct gat gcc cct ggc cac 97
Leu Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His
20 25 30
cag agg aaa gtg gtg tca tgg ata gat gtg tat act cgc gct acc tgc 145
Gln Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys
35 40 45
cag ccc cgg gag gtg gtg gtg ccc ttg act gtg gag ctc atg ggc acc 193
Gln Pro Arg Glu Val Val Val Pro Leu Thr Val Glu Leu Met Gly Thr
50 55 60
gtg gcc aaa cag ctg gtg ccc agc tgc gtg act gtg cag cgc tgt ggt 241
Val Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly
65 70 75
ggc tgc tgc cct gac gat ggc ctg gag tgt gtg ccc act ggg cag cac 289
Gly Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His
80 85 90 95
caa gtc cgg atg cag atc ctc atg atc cgg tac ccg agc agt cag ctg 337
Gln Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu
100 105 110
ggg gag atg tcc ctg gaa gaa cac agc cag tgt gaa tgc aga cct aaa 385
Gly Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys
115 120 125
aaa aag gac agt gct gtg aag cca gac agg gct gcc act ccc cac cac 433
Lys Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His
130 135 140
cgt ccc cag ccc cgt tct gtt ccg ggc tgg gac tct gcc ccc gga gca 481
Arg Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala
145 150 155
ccc tcc cca gct gac atc acc cat ccc act cca gcc cca ggc ccc tct 529
Pro Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser
160 165 170 175
gcc cac gct gca ccc agc acc acc agc gcc ctg acc ccc gga cct gcc 577
Ala His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala
180 185 190

gcc gcc gct gcc gac gcc gca gct tcc tcc gtt gcc aag ggc ggg gct 625
 Ala Ala Ala Ala Asp Ala Ala Ala Ser Ser Val Ala Lys Gly Gly Ala
 195 200 205

tag agtcaaccc agacacctgc aggtgccgga agctgcgaag gtgacacatg 678

gcttttcaga ctcagcaggg tgacttgctt cagaggctat atcccagtgg ggggaacaaag 738

aggagcctgg taaaaaa 755

<210> 22
 <211> 207
 <212> PRT
 <213> Homo sapiens

<400> 22

Met Ser Pro Leu Leu Arg Arg Leu Leu Leu Ala Ala Leu Leu Gln Leu
 1 5 10 15

Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His Gln
 20 25 30

Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys Gln
 35 40 45

Pro Arg Glu Val Val Val Pro Leu Thr Val Glu Leu Met Gly Thr Val
 50 55 60

Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly Gly
 65 70 75 80

Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His Gln
 85 90 95

Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu Gly
 100 105 110

Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys Lys
 115 120 125

Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His Arg
 130 135 140

Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala Pro
 145 150 155 160

Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser Ala
 165 170 175

His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala Ala

180

185

190

Ala Ala Ala Asp Ala Ala Ala Ser Ser Val Ala Lys Gly Gly Ala
 195 200 205

<210> 23
 <211> 1997
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (352)..(1611)

<400> 23
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 ctcgcttcac ctgcggggct ccgaatgcgg ggagctcgga tgtccggttt cctgtgaggc 120
 ttttacctga caccgcgcgc ctttccccgg cactggctgg gagggcgccc tgcaaagttg 180
 ggaacgcgga gccccggacc cgctcccgcc gcctccggct cgcccagggg gggtcgcccg 240
 gaggagcccg ggggagaggg accaggaggg gcccgcgggc tcgcaggggc gccgcgccc 300
 ccacccctgc ccccgccagc ggaccggtcc cccacccccg gtccttcac c atg cac 357
 Met His
 1
 ttg ctg ggc ttc ttc tct gtg gcg tgt tct ctg ctc gcc gct gcg ctg 405
 Leu Leu Gly Phe Phe Ser Val Ala Cys Ser Leu Leu Ala Ala Ala Leu
 5 10 15
 ctc ccg ggt cct cgc gag gcg ccc gcc gcc gcc gcc gcc ttc gag tcc 453
 Leu Pro Gly Pro Arg Glu Ala Pro Ala Ala Ala Ala Ala Phe Glu Ser
 20 25 30
 gga ctc gac ctc tcg gac gcg gag ccc gac gcg ggc gag gcc acg gct 501
 Gly Leu Asp Leu Ser Asp Ala Glu Pro Asp Ala Gly Glu Ala Thr Ala
 35 40 45 50
 tat gca agc aaa gat ctg gag gag cag tta cgg tct gtg tcc agt gta 549
 Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser Ser Val
 55 60 65
 gat gaa ctc atg act gta ctc tac cca gaa tat tgg aaa atg tac aag 597
 Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met Tyr Lys
 70 75 80
 tgt cag cta agg aaa gga ggc tgg caa cat aac aga gaa cag gcc aac 645
 Cys Gln Leu Arg Lys Gly Gly Trp Gln His Asn Arg Glu Gln Ala Asn
 85 90 95
 ctc aac tca agg aca gaa gag act ata aaa ttt gct gca gca cat tat 693
 Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala His Tyr
 100 105 110
 aat aca gag atc ttg aaa agt att gat aat gag tgg aga aag act caa 741
 Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys Thr Gln

115	120	125	130	
tgc atg cca cgg gag gtg tgt ata gat gtg ggg aag gag ttt gga gtc Cys Met Pro Arg Glu Val Cys Ile Asp Val Gly Lys Glu Phe Gly Val 135 140 145				789
gcg aca aac acc ttc ttt aaa cct cca tgt gtg tcc gtc tac aga tgt Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr Arg Cys 150 155 160				837
ggg ggt tgc tgc aat agt gag ggg ctg cag tgc atg aac acc agc acg Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr Ser Thr 165 170 175				885
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ggc ccc aaa cca gta aca atc agt ttt gcc aat cac act tcc tgc cga Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser Cys Arg 195 200 205 210				981
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cgt tcc ctg cca gca aca cta cca cag tgt cag gca gcg aac aag acc Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn Lys Thr 230 235 240				1077
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 Leu Lys Gly Lys Lys Phe His His Gln Thr Cys Ser Cys Tyr Arg Arg
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 Glu Glu Val Cys Arg Cys Val Pro Ser Tyr Trp Lys Arg Pro Gln Met
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 Ser
 gccacagtag aactgtctgt gaacagagag acccttgtgg gtccatgcta acaaagacaa 1721
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<400> 24

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 35 40 45

Thr Ala Tyr Ala Ser Lys Asp Leu Glu Glu Gln Leu Arg Ser Val Ser
 50 55 60

Ser Val Asp Glu Leu Met Thr Val Leu Tyr Pro Glu Tyr Trp Lys Met
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Tyr Lys Cys Gln Leu Arg Lys Gly Gly Trp Gln His Asn Arg Glu Gln
 85 90 95

Ala Asn Leu Asn Ser Arg Thr Glu Glu Thr Ile Lys Phe Ala Ala Ala
 100 105 110

His Tyr Asn Thr Glu Ile Leu Lys Ser Ile Asp Asn Glu Trp Arg Lys
 115 120 125

Thr Gln Cys Met Pro Arg Glu Val Cys Ile Asp Val Gly Lys Glu Phe
 130 135 140

Gly Val Ala Thr Asn Thr Phe Phe Lys Pro Pro Cys Val Ser Val Tyr
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Arg Cys Gly Gly Cys Cys Asn Ser Glu Gly Leu Gln Cys Met Asn Thr
 165 170 175

Ser Thr Ser Tyr Leu Ser Lys Thr Leu Phe Glu Ile Thr Val Pro Leu
 180 185 190

Ser Gln Gly Pro Lys Pro Val Thr Ile Ser Phe Ala Asn His Thr Ser
 195 200 205

Cys Arg Cys Met Ser Lys Leu Asp Val Tyr Arg Gln Val His Ser Ile
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Ile Arg Arg Ser Leu Pro Ala Thr Leu Pro Gln Cys Gln Ala Ala Asn
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Lys Thr Cys Pro Thr Asn Tyr Met Trp Asn Asn His Ile Cys Arg Cys
 245 250 255

Leu Ala Gln Glu Asp Phe Met Phe Ser Ser Asp Ala Gly Asp Asp Ser
 260 265 270

Thr Asp Gly Phe His Asp Ile Cys Gly Pro Asn Lys Glu Leu Asp Glu
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Glu Thr Cys Gln Cys Val Cys Arg Ala Gly Leu Arg Pro Ala Ser Cys
 290 295 300

Gly Pro His Lys Glu Leu Asp Arg Asn Ser Cys Gln Cys Val Cys Lys
 305 310 315 320

Asn Lys Leu Phe Pro Ser Gln Cys Gly Ala Asn Arg Glu Phe Asp Glu
 325 330 335

Asn Thr Cys Gln Cys Val Cys Lys Arg Thr Cys Pro Arg Asn Gln Pro
 340 345 350

Leu Asn Pro Gly Lys Cys Ala Cys Glu Cys Thr Glu Ser Pro Gln Lys
 355 360 365

Cys Leu Leu Lys Gly Lys Lys Phe His His Gln Thr Cys Ser Cys Tyr
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Arg Arg Pro Cys Thr Asn Arg Gln Lys Ala Cys Glu Pro Gly Phe Ser
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Tyr Ser Glu Glu Val Cys Arg Cys Val Pro Ser Tyr Trp Lys Arg Pro
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Gln Met Ser

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 tgaagttttg aggtttcaaa ctttccttct ggagaatgcc ttttgaaaca attttctcta 360
 gctgcctgat gtcaactgct tagtaatcag tggatattga aatattcaaa atg tac 416
 Met Tyr
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 aga gag tgg gta gtg gtg aat gtt ttc atg atg ttg tac gtc cag ctg 464
 Arg Glu Trp Val Val Val Asn Val Phe Met Met Leu Tyr Val Gln Leu
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 Val Gln Gly Ser Ser Asn Glu His Gly Pro Val Lys Arg Ser Ser Gln
 20 25 30
 tcc aca ttg gaa cga tct gaa cag cag atc agg gct gct tct agt ttg 560
 Ser Thr Leu Glu Arg Ser Glu Gln Gln Ile Arg Ala Ala Ser Ser Leu
 35 40 45 50
 gag gaa cta ctt cga att act cac tct gag gac tgg aag ctg tgg aga 608
 Glu Glu Leu Leu Arg Ile Thr His Ser Glu Asp Trp Lys Leu Trp Arg
 55 60 65
 tgc agg ctg agg ctc aaa agt ttt acc agt atg gac tct cgc tca gca 656
 Cys Arg Leu Arg Leu Lys Ser Phe Thr Ser Met Asp Ser Arg Ser Ala
 70 75 80
 tcc cat cgg tcc act agg ttt gcg gca act ttc tat gac att gaa aca 704
 Ser His Arg Ser Thr Arg Phe Ala Ala Thr Phe Tyr Asp Ile Glu Thr
 85 90 95

cta aaa gtt ata gat gaa gaa tgg caa aga act cag tgc agc cct aga Leu Lys Val Ile Asp Glu Glu Trp Gln Arg Thr Gln Cys Ser Pro Arg 100 105 110	752
gaa acg tgc gtg gag gtg gcc agt gag ctg ggg aag agt acc aac aca Glu Thr Cys Val Glu Val Ala Ser Glu Leu Gly Lys Ser Thr Asn Thr 115 120 125 130	800
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aat gaa gag agc ctt atc tgt atg aac acc agc acc tcg tac att tcc Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr Ile Ser 150 155 160	896
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cta tgg gat agc aac aaa tgt aaa tgt gtt ttg cag gag gaa aat cca Leu Trp Asp Ser Asn Lys Cys Lys Cys Val Leu Gln Glu Glu Asn Pro 230 235 240	1136
ctt gct gga aca gaa gac cac tct cat ctc cag gaa cca gct ctc tgt Leu Ala Gly Thr Glu Asp His Ser His Leu Gln Glu Pro Ala Leu Cys 245 250 255	1184
ggg cca cac atg atg ttt gac gaa gat cgt tgc gag tgt gtc tgt aaa Gly Pro His Met Met Phe Asp Glu Asp Arg Cys Glu Cys Val Cys Lys 260 265 270	1232
aca cca tgt ccc aaa gat cta atc cag cac ccc aaa aac tgc agt tgc Thr Pro Cys Pro Lys Asp Leu Ile Gln His Pro Lys Asn Cys Ser Cys 275 280 285 290	1280
ttt gag tgc aaa gaa agt ctg gag acc tgc tgc cag aag cac aag cta Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His Lys Leu 295 300 305	1328
ttt cac cca gac acc tgc agc tgt gag gac aga tgc ccc ttt cat acc Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe His Thr 310 315 320	1376
aga cca tgt gca agt ggc aaa aca gca tgt gca aag cat tgc cgc ttt Arg Pro Cys Ala Ser Gly Lys Thr Ala Cys Ala Lys His Cys Arg Phe 325 330 335	1424
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Cys Cys Asn Glu Glu Ser Leu Ile Cys Met Asn Thr Ser Thr Ser Tyr				
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Ile Ser Lys Gln Leu Phe Glu Ile Ser Val Pro Leu Thr Ser Val Pro				
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Glu Leu Val Pro Val Lys Val Ala Asn His Thr Gly Cys Lys Cys Leu				
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Pro Thr Ala Pro Arg His Pro Tyr Ser Ile Ile Arg Arg Ser Ile Gln				
	195		200	205
Ile Pro Glu Glu Asp Arg Cys Ser His Ser Lys Lys Leu Cys Pro Ile				
	210		215	220
Asp Met Leu Trp Asp Ser Asn Lys Cys Lys Cys Val Leu Gln Glu Glu				
	225	230	235	240
Asn Pro Leu Ala Gly Thr Glu Asp His Ser His Leu Gln Glu Pro Ala				
	245		250	255
Leu Cys Gly Pro His Met Met Phe Asp Glu Asp Arg Cys Glu Cys Val				
	260		265	270
Cys Lys Thr Pro Cys Pro Lys Asp Leu Ile Gln His Pro Lys Asn Cys				
	275		280	285
Ser Cys Phe Glu Cys Lys Glu Ser Leu Glu Thr Cys Cys Gln Lys His				
	290		295	300
Lys Leu Phe His Pro Asp Thr Cys Ser Cys Glu Asp Arg Cys Pro Phe				
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His Thr Arg Pro Cys Ala Ser Gly Lys Thr Ala Cys Ala Lys His Cys				
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Asn Pro

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<222> (322)..(771)

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ctcctcctgt gccaggggct ccccggggga tgagcatggg ggttttcctt cggagcccc      300
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                        Met Pro Val Met Arg Leu Phe Pro Cys Phe
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ctg cag ctc ctg gcc ggg ctg gcg ctg cct gct gtg ccc ccc cag cag      399
Leu Gln Leu Leu Ala Gly Leu Ala Leu Pro Ala Val Pro Pro Gln Gln
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Trp Ala Leu Ser Ala Gly Asn Gly Ser Ser Glu Val Glu Val Val Pro
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ttc cag gaa gtg tgg ggc cgc agc tac tgc cgg gcg ctg gag agg ctg      495
Phe Gln Glu Val Trp Gly Arg Ser Tyr Cys Arg Ala Leu Glu Arg Leu
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gtg gac gtc gtg tcc gag tac ccc agc gag gtg gag cac atg ttc agc      543
Val Asp Val Val Ser Glu Tyr Pro Ser Glu Val Glu His Met Phe Ser
                        60                      65                      70

cca tcc tgt gtc tcc ctg ctg cgc tgc acc ggc tgc tgc ggc gat gag      591
Pro Ser Cys Val Ser Leu Leu Arg Cys Thr Gly Cys Cys Gly Asp Glu
75                      80                      85                      90

aat ctg cac tgt gtg ccg gtg gag acg gcc aat gtc acc atg cag ctc      639
Asn Leu His Cys Val Pro Val Glu Thr Ala Asn Val Thr Met Gln Leu
                        95                      100                      105

cta aag atc cgt tct ggg gac cgg ccc tcc tac gtg gag ctg acg ttc      687
Leu Lys Ile Arg Ser Gly Asp Arg Pro Ser Tyr Val Glu Leu Thr Phe
                        110                      115                      120

tct cag cac gtt cgc tgc gaa tgc cgg cct ctg cgg gag aag atg aag      735
Ser Gln His Val Arg Cys Glu Cys Arg Pro Leu Arg Glu Lys Met Lys
                        125                      130                      135

ccg gaa agg tgc ggc gat gct gtt ccc cgg agg taa cccaccctt      781
Pro Glu Arg Cys Gly Asp Ala Val Pro Arg Arg
140                      145

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cctgctggtg cctgcctctt atttattagc caactgtttc cctgctgaat gcctcgctcc      901
cttcaagacg aggggcaggg aaggacagga ccctcaggaa ttcagtgcct tcaacaacgt      961
gagagaaaga gagaagccag ccacagaccc ctgggagctt ccgctttgaa agaagcaaga      1021
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<400> 28

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Asn Gly Ser Ser Glu Val Glu Val Val Pro Phe Gln Glu Val Trp Gly
 35 40 45

Arg Ser Tyr Cys Arg Ala Leu Glu Arg Leu Val Asp Val Val Ser Glu
 50 55 60

Tyr Pro Ser Glu Val Glu His Met Phe Ser Pro Ser Cys Val Ser Leu
 65 70 75 80

Leu Arg Cys Thr Gly Cys Cys Gly Asp Glu Asn Leu His Cys Val Pro
 85 90 95

Val Glu Thr Ala Asn Val Thr Met Gln Leu Leu Lys Ile Arg Ser Gly
 100 105 110

Asp Arg Pro Ser Tyr Val Glu Leu Thr Phe Ser Gln His Val Arg Cys
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135

140

Ala Val Pro Arg Arg
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Ala Ala Ser Val Gly Leu Pro Ser Val Ser Leu Asp Leu Pro Arg Leu
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agc ata caa aaa gac ata ctt aca att aag gct aat aca act ctt caa 144
Ser Ile Gln Lys Asp Ile Leu Thr Ile Lys Ala Asn Thr Thr Leu Gln
35 40 45

att act tgc agg gga cag agg gac ttg gac tgg ctt tgg ccc aat aat 192
Ile Thr Cys Arg Gly Gln Asp Leu Asp Trp Leu Trp Pro Asn Asn
50 55 60

cag agt ggc agt gag caa agg gtg gag gtg act gag tgc agc gat ggc 240
Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser Asp Gly
65 70 75 80

ctc ttc tgt aag aca ctc aca att cca aaa gtg atc gga aat gac act 288
Leu Phe Cys Lys Thr Leu Thr Ile Pro Lys Val Ile Gly Asn Asp Thr
85 90 95

gga gcc tac aag tgc ttc tac cgg gaa act gac ttg gcc tcg gtc att 336
Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile
100 105 110

tat gtc tat gtt caa gat tac aga tct cca ttt att gct tct gtt agt 384
Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser
115 120 125

gac caa cat gga gtc gtg tac att act gag aac aaa aac aaa act gtg 432
Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val
130 135 140

gtg att cca tgt ctc ggg tcc att tca aat ctc aac gtg tca ctt tgt 480
Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys
145 150 155 160

gca aga tac cca gaa aag aga ttt gtt cct gat ggt aac aga att tcc 528
Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser
165 170 175

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Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile Ser Tyr

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Cys	Ala	Ala	Ser	Ser	Gly	Leu	Met	Thr	Lys	Lys	Asn	Ser	Thr	Phe	Val															
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			420					425					430																	

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Ile Thr Cys Arg Gly Gln Arg Asp Leu Asp Trp Leu Trp Pro Asn Asn
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Gln Ser Gly Ser Glu Gln Arg Val Glu Val Thr Glu Cys Ser Asp Gly
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Gly Ala Tyr Lys Cys Phe Tyr Arg Glu Thr Asp Leu Ala Ser Val Ile
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Tyr Val Tyr Val Gln Asp Tyr Arg Ser Pro Phe Ile Ala Ser Val Ser
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Asp Gln His Gly Val Val Tyr Ile Thr Glu Asn Lys Asn Lys Thr Val
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Val Ile Pro Cys Leu Gly Ser Ile Ser Asn Leu Asn Val Ser Leu Cys
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Ala Arg Tyr Pro Glu Lys Arg Phe Val Pro Asp Gly Asn Arg Ile Ser
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Trp Asp Ser Lys Lys Gly Phe Thr Ile Pro Ser Tyr Met Ile Ser Tyr
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Ser Ile Met Tyr Ile Val Val Val Val Gly Tyr Arg Ile Tyr Asp Val
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Val Leu Asn Cys Thr Ala Arg Thr Glu Leu Asn Val Gly Ile Asp Phe
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Arg Asp Leu Lys Thr Gln Ser Gly Ser Glu Met Lys Lys Phe Leu Ser
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Cys Ala Ala Ser Ser Gly Leu Met Thr Lys Lys Asn Ser Thr Phe Val
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Leu Glu Ser Asn His Thr Ile Lys Ala Gly His Val Leu Thr Ile Met
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Glu Val Ser Glu Arg Asp Thr Gly Asn Tyr Thr Val Ile Leu Thr Asn
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Pro Ile Ser Lys Glu Lys Gln Ser His Val Val Ser Leu Val Val Tyr
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Val Pro Pro Gln Ile Gly Glu Lys Ser Leu Ile Ser Pro Val Asp Ser
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Tyr Gln Tyr Gly Thr Thr Gln Thr Leu Thr Cys Thr Val Tyr Ala Ile
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Val Thr Arg Gly Pro Glu Ile Thr Leu Gln Pro Asp Met Gln Pro Thr
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Glu Asn Leu Thr Trp Tyr Lys Leu Gly Pro Gln Pro Leu Pro Ile His
 580 585 590

Val Gly Glu Leu Pro Thr Pro Val Cys Lys Asn Leu Asp Thr Leu Trp
 595 600 605

Lys Leu Asn Ala Thr Met Phe Ser Asn Ser Thr Asn Asp Ile Leu Ile
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Ser Gly Asn Pro Pro Pro Gln Ile Met Trp Phe Lys Asp Asn Glu Thr
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Ala Cys Ser Val Leu Gly Cys Ala Lys Val Glu Ala Phe Phe Ile Ile
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Glu Gly Ala Gln Glu Lys Thr Asn Leu Glu Ile Ile Ile Leu Val Gly
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Thr Thr Val Ile Ala Met Phe Phe Trp Leu Leu Leu Val Ile Ile Leu
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Asn Leu Gly Lys Pro Leu Gly Arg Gly Ala Phe Gly Gln Glu Ile Glu
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Ala Asp Ala Phe Gly Ile Asp Lys Thr Ala Thr Cys Arg Thr Val Ala
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Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly His His Leu Asn Val
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Ile Val Glu Phe Cys Lys Phe Gly Asn Leu Ser Thr Tyr Leu Arg Ser
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Ser	Pro	His	Ala	Leu	Val	Leu	Lys	Glu	Val	Thr	Glu	Ala	Ser	Thr	Gly		
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acc	tac	acc	ctc	gcc	ctg	tgg	aac	tcc	gct	gct	ggc	ctg	agg	cgc	aac	1252	
Thr	Tyr	Thr	Leu	Ala	Leu	Trp	Asn	Ser	Ala	Ala	Gly	Leu	Arg	Arg	Asn		
				400					405					410			
atc	agc	ctg	gag	ctg	gtg	gtg	aat	gtg	ccc	ccc	cag	ata	cat	gag	aag	1300	
Ile	Ser	Leu	Glu	Leu	Val	Val	Asn	Val	Pro	Pro	Gln	Ile	His	Glu	Lys		
			415					420					425				
gag	gcc	tcc	tcc	ccc	agc	atc	tac	tgc	cgt	cac	agc	cgc	cag	gcc	ctc	1348	
Glu	Ala	Ser	Ser	Pro	Ser	Ile	Tyr	Ser	Arg	His	Ser	Arg	Gln	Ala	Leu		
		430					435					440					
acc	tgc	acg	gcc	tac	ggg	gtg	ccc	ctg	cct	ctc	agc	atc	cag	tgg	cac	1396	
Thr	Cys	Thr	Ala	Tyr	Gly	Val	Pro	Leu	Pro	Leu	Ser	Ile	Gln	Trp	His		
	445					450					455						
tgg	cgg	ccc	tgg	aca	ccc	tgc	aag	atg	ttt	gcc	cag	cgt	agt	ctc	cgg	1444	
Trp	Arg	Pro	Trp	Thr	Pro	Cys	Lys	Met	Phe	Ala	Gln	Arg	Ser	Leu	Arg		
460					465					470					475		
cgg	cgg	cag	cag	caa	gac	ctc	atg	cca	cag	tgc	cgt	gac	tgg	agg	gcg	1492	
Arg	Arg	Gln	Gln	Gln	Asp	Leu	Met	Pro	Gln	Cys	Arg	Asp	Trp	Arg	Ala		
				480					485					490			
gtg	acc	acg	cag	gat	gcc	gtg	aac	ccc	atc	gag	agc	ctg	gac	acc	tgg	1540	
Val	Thr	Thr	Gln	Asp	Ala	Val	Asn	Pro	Ile	Glu	Ser	Leu	Asp	Thr	Trp		
			495					500					505				
acc	gag	ttt	gtg	gag	gga	aag	aat	aag	act	gtg	agc	aag	ctg	gtg	atc	1588	
Thr	Glu	Phe	Val	Glu	Gly	Lys	Asn	Lys	Thr	Val	Ser	Lys	Leu	Val	Ile		
		510					515					520					
cag	aat	gcc	aac	gtg	tct	gcc	atg	tac	aag	tgt	gtg	gtc	tcc	aac	aag	1636	
Gln	Asn	Ala	Asn	Val	Ser	Ala	Met	Tyr	Lys	Cys	Val	Val	Ser	Asn	Lys		
	525					530					535						
gtg	ggc	cag	gat	gag	cgg	ctc	atc	tac	ttc	tat	gtg	acc	acc	atc	ccc	1684	
Val	Gly	Gln	Asp	Glu	Arg	Leu	Ile	Tyr	Phe	Tyr	Val	Thr	Thr	Ile	Pro		
540					545					550					555		
gac	ggc	ttc	acc	atc	gaa	tcc	aag	cca	tcc	gag	gag	cta	cta	gag	ggc	1732	
Asp	Gly	Phe	Thr	Ile	Glu	Ser	Lys	Pro	Ser	Glu	Glu	Leu	Leu	Glu	Gly		
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cag	ccg	gtg	ctc	ctg	agc	tgc	caa	gcc	gac	agc	tac	aag	tac	gag	cat	1780	
Gln	Pro	Val	Leu	Leu	Ser	Cys	Gln	Ala	Asp	Ser	Tyr	Lys	Tyr	Glu	His		
			575					580					585				
ctg	cgc	tgg	tac	cgc	ctc	aac	ctg	tcc	acg	ctg	cac	gat	gcg	cac	ggg	1828	
Leu	Arg	Trp	Tyr	Arg	Leu	Asn	Leu	Ser	Thr	Leu	His	Asp	Ala	His	Gly		
		590				595						600					
aac	ccg	ctt	ctg	ctc	gac	tgc	aag	aac	gtg	cat	ctg	ttc	gcc	acc	cct	1876	
Asn	Pro	Leu	Leu	Leu	Asp	Cys	Lys	Asn	Val	His	Leu	Phe	Ala	Thr	Pro		
	605					610					615						

ctg gcc gcc agc ctg gag gag gtg gca cct ggg gcg cgc cac gcc acg Leu Ala Ala Ser Leu Glu Glu Val Ala Pro Gly Ala Arg His Ala Thr 620 625 630 635	1924
ctc agc ctg agt atc ccc cgc gtc gcg ccc gag cac gag ggc cac tat Leu Ser Leu Ser Ile Pro Arg Val Ala Pro Glu His Glu Gly His Tyr 640 645 650	1972
gtg tgc gaa gtg caa gac cgg cgc agc cat gac aag cac tgc cac aag Val Cys Glu Val Gln Asp Arg Arg Ser His Asp Lys His Cys His Lys 655 660 665	2020
aag tac ctg tgc gtg cag gcc ctg gaa gcc cct cgg ctc acg cag aac Lys Tyr Leu Ser Val Gln Ala Leu Glu Ala Pro Arg Leu Thr Gln Asn 670 675 680	2068
ttg acc gac ctc ctg gtg aac gtg agc gac tcg ctg gag atg cag tgc Leu Thr Asp Leu Leu Val Asn Val Ser Asp Ser Leu Glu Met Gln Cys 685 690 695	2116
ttg gtg gcc gga gcg cac gcg ccc agc atc gtg tgg tac aaa gac gag Leu Val Ala Gly Ala His Ala Pro Ser Ile Val Trp Tyr Lys Asp Glu 700 705 710 715	2164
agg ctg ctg gag gaa aag tct gga gtc gac ttg gcg gac tcc aac cag Arg Leu Leu Glu Glu Lys Ser Gly Val Asp Leu Ala Asp Ser Asn Gln 720 725 730	2212
aag ctg agc atc cag cgc gtg cgc gag gag gat gcg gga cgc tat ctg Lys Leu Ser Ile Gln Arg Val Arg Glu Glu Asp Ala Gly Arg Tyr Leu 735 740 745	2260
tgc agc gtg tgc aac gcc aag ggc tgc gtc aac tcc tcc gcc agc gtg Cys Ser Val Cys Asn Ala Lys Gly Cys Val Asn Ser Ser Ala Ser Val 750 755 760	2308
gcc gtg gaa ggc tcc gag gat aag ggc agc atg gag atc gtg atc ctt Ala Val Glu Gly Ser Glu Asp Lys Gly Ser Met Glu Ile Val Ile Leu 765 770 775	2356
gtc ggt acc ggc gtc atc gct gtc ttc ttc tgg gtc ctc ctc ctc ctc Val Gly Thr Gly Val Ile Ala Val Phe Phe Trp Val Leu Leu Leu Leu 780 785 790 795	2404
atc ttc tgt aac atg agg agg ccg gcc cac gca gac atc aag acg ggc Ile Phe Cys Asn Met Arg Arg Pro Ala His Ala Asp Ile Lys Thr Gly 800 805 810	2452
tac ctg tcc atc atc atg gac ccc ggg gag gtg cct ctg gag gag caa Tyr Leu Ser Ile Ile Met Asp Pro Gly Glu Val Pro Leu Glu Glu Gln 815 820 825	2500
tgc gaa tac ctg tcc tac gat gcc agc cag tgg gaa ttc ccc cga gag Cys Glu Tyr Leu Ser Tyr Asp Ala Ser Gln Trp Glu Phe Pro Arg Glu 830 835 840	2548
cgg ctg cac ctg ggg aga gtg ctc ggc tac ggc gcc ttc ggg aag gtg Arg Leu His Leu Gly Arg Val Leu Gly Tyr Gly Ala Phe Gly Lys Val 845 850 855	2596
gtg gaa gcc tcc gct ttc ggc atc cac aag ggc agc agc tgt gac acc Val Glu Ala Ser Ala Phe Gly Ile His Lys Gly Ser Ser Cys Asp Thr 860 865 870 875	2644

gtg gcc gtg aaa atg ctg aaa gag ggc gcc acg gcc agc gag cac cgc	2692
Val Ala Val Lys Met Leu Lys Glu Gly Ala Thr Ala Ser Glu His Arg	
880 885 890	
gcg ctg atg tgc gag ctc aag atc ctc att cac atc ggc aac cac ctc	2740
Ala Leu Met Ser Glu Leu Lys Ile Leu Ile His Ile Gly Asn His Leu	
895 900 905	
aac gtg gtc aac ctc ctc ggg ggc tgc acc aag ccg cag ggc ccc ctc	2788
Asn Val Val Asn Leu Leu Gly Ala Cys Thr Lys Pro Gln Gly Pro Leu	
910 915 920	
atg gtg atc gtg gag ttc tgc aag tac ggc aac ctc tcc aac ttc ctg	2836
Met Val Ile Val Glu Phe Cys Lys Tyr Gly Asn Leu Ser Asn Phe Leu	
925 930 935	
cgc gcc aag cgg gac gcc ttc agc ccc tgc ggc gag aag tct ccc gag	2884
Arg Ala Lys Arg Asp Ala Phe Ser Pro Cys Ala Glu Lys Ser Pro Glu	
940 945 950 955	
cag cgc gga cgc ttc cgc gcc atg gtg gag ctc gcc agg ctg gat cgg	2932
Gln Arg Gly Arg Phe Arg Ala Met Val Glu Leu Ala Arg Leu Asp Arg	
960 965 970	
agg cgg ccg ggg agc agc gac agg gtc ctc ttc ggc cgg ttc tcg aag	2980
Arg Arg Pro Gly Ser Ser Asp Arg Val Leu Phe Ala Arg Phe Ser Lys	
975 980 985	
acc gag ggc gga ggc agg cgg gct tct cca gac caa gaa gct gag gac	3028
Thr Glu Gly Gly Ala Arg Arg Ala Ser Pro Asp Gln Glu Ala Glu Asp	
990 995 1000	
ctg tgg ctg agc ccg ctg acc atg gaa gat ctt gtc tgc tac agc ttc	3076
Leu Trp Leu Ser Pro Leu Thr Met Glu Asp Leu Val Cys Tyr Ser Phe	
1005 1010 1015	
cag gtg gcc aga ggg atg gag ttc ctg gct tcc cga aag tgc atc cac	3124
Gln Val Ala Arg Gly Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His	
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aga gac ctg gct gct cgg aac att ctg ctg tcg gaa agc gac gtg gtg	3172
Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu Ser Glu Ser Asp Val Val	
1040 1045 1050	
aag atc tgt gac ttt ggc ctt gcc cgg gac atc tac aaa gac cct gac	3220
Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp	
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tac gtc cgc aag ggc agt gcc cgg ctg ccc ctg aag tgg atg gcc cct	3268
Tyr Val Arg Lys Gly Ser Ala Arg Leu Pro Leu Lys Trp Met Ala Pro	
1070 1075 1080	
gaa agc atc ttc gac aag gtg tac acc acg cag agt gac gtg tgg tcc	3316
Glu Ser Ile Phe Asp Lys Val Tyr Thr Thr Gln Ser Asp Val Trp Ser	
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Phe Gly Val Leu Leu Trp Glu Ile Phe Ser Leu Gly Ala Ser Pro Tyr	
1100 1105 1110 1115	
cct ggg gtg cag atc aat gag gag ttc tgc cag cgg ctg aga gac ggc	3412
Pro Gly Val Gln Ile Asn Glu Glu Phe Cys Gln Arg Leu Arg Asp Gly	
1120 1125 1130	

aca agg atg agg gcc ccg gag ctg gcc act ccc gcc ata cgc cgc atc 3460
 Thr Arg Met Arg Ala Pro Glu Leu Ala Thr Pro Ala Ile Arg Arg Ile
 1135 1140 1145

atg ctg aac tgc tgg tcc gga gac ccc aag gcg aga cct gca ttc tcg 3508
 Met Leu Asn Cys Trp Ser Gly Asp Pro Lys Ala Arg Pro Ala Phe Ser
 1150 1155 1160

gag ctg gtg gag atc ctg ggg gac ctg ctc cag ggc agg ggc ctg caa 3556
 Glu Leu Val Glu Ile Leu Gly Asp Leu Leu Gln Gly Arg Gly Leu Gln
 1165 1170 1175

gag gaa gag gag gtc tgc atg gcc ccg cgc agc tct cag agc tca gaa 3604
 Glu Glu Glu Glu Val Cys Met Ala Pro Arg Ser Ser Gln Ser Ser Glu
 1180 1185 1190 1195

gag ggc agc ttc tcg cag gtg tcc acc atg gcc cta cac atc gcc cag 3652
 Glu Gly Ser Phe Ser Gln Val Ser Thr Met Ala Leu His Ile Ala Gln
 1200 1205 1210

gct gac gct gag gac agc ccg cca agc ctg cag cgc cac agc ctg gcc 3700
 Ala Asp Ala Glu Asp Ser Pro Pro Ser Leu Gln Arg His Ser Leu Ala
 1215 1220 1225

gcc agg tat tac aac tgg gtg tcc ttt ccc ggg tgc ctg gcc aga ggg 3748
 Ala Arg Tyr Tyr Asn Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly
 1230 1235 1240

gct gag acc cgt ggt tcc tcc agg atg aag aca ttt gag gaa ttc ccc 3796
 Ala Glu Thr Arg Gly Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro
 1245 1250 1255

atg acc cca acg acc tac aaa ggc tct gtg gac aac cag aca gac agt 3844
 Met Thr Pro Thr Thr Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser
 1260 1265 1270 1275

ggg atg gtg ctg gcc tcg gag gag ttt gag cag ata gag agc agg cat 3892
 Gly Met Val Leu Ala Ser Glu Glu Phe Glu Gln Ile Glu Ser Arg His
 1280 1285 1290

aga caa gaa agc ggc ttc agg tagctgaagc agagagagag aaggcagcat 3943
 Arg Gln Glu Ser Gly Phe Arg
 1295

acgtcagcat tttcttctct gcacttataa gaaagatcaa agactttaag actttcgcta 4003

tttcttcttac tgctatctac tacaaacttc aaagaggaac caggaggaca agaggagcat 4063

gaaagtggac aaggagtgtg accactgaag caccacaggg aagggggttag gcctccggat 4123

gactgctggc aggcctggat aatatccagc ctcccacaag aagctggtgg agcagagtgt 4183

tccctgactc ct 4195

<210> 32
 <211> 1298
 <212> PRT
 <213> Homo sapiens
 <400> 32

Met Gln Arg Gly Ala Ala Leu Cys Leu Arg Leu Trp Leu Cys Leu Gly

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Asn Ile Thr Glu Glu Ser His Val Ile Asp Thr Gly Asp Ser Leu Ser	35	40	45
Ile Ser Cys Arg Gly Gln His Pro Leu Glu Trp Ala Trp Pro Gly Ala	50	55	60
Gln Glu Ala Pro Ala Thr Gly Asp Lys Asp Ser Glu Asp Thr Gly Val	65	70	75
Val Arg Asp Cys Glu Gly Thr Asp Ala Arg Pro Tyr Cys Lys Val Leu	85	90	95
Leu Leu His Glu Val His Ala Asn Asp Thr Gly Ser Tyr Val Cys Tyr	100	105	110
Tyr Lys Tyr Ile Lys Ala Arg Ile Glu Gly Thr Thr Ala Ala Ser Ser	115	120	125
Tyr Val Phe Val Arg Asp Phe Glu Gln Pro Phe Ile Asn Lys Pro Asp	130	135	140
Thr Leu Leu Val Asn Arg Lys Asp Ala Met Trp Val Pro Cys Leu Val	145	150	155
Ser Ile Pro Gly Leu Asn Val Thr Leu Arg Ser Gln Ser Ser Val Leu	165	170	175
Trp Pro Asp Gly Gln Glu Val Val Trp Asp Asp Arg Arg Gly Met Leu	180	185	190
Val Ser Thr Pro Leu Leu His Asp Ala Leu Tyr Leu Gln Cys Glu Thr	195	200	205
Thr Trp Gly Asp Gln Asp Phe Leu Ser Asn Pro Phe Leu Val His Ile	210	215	220
Thr Gly Asn Glu Leu Tyr Asp Ile Gln Leu Leu Pro Arg Lys Ser Leu	225	230	235
Glu Leu Leu Val Gly Glu Lys Leu Val Leu Asn Cys Thr Val Trp Ala	245	250	255

Glu Phe Asn Ser Gly Val Thr Phe Asp Trp Asp Tyr Pro Gly Lys Gln
 260 265 270
 Ala Glu Arg Gly Lys Trp Val Pro Glu Arg Arg Ser Gln Gln Thr His
 275 280 285
 Thr Glu Leu Ser Ser Ile Leu Thr Ile His Asn Val Ser Gln His Asp
 290 295 300
 Leu Gly Ser Tyr Val Cys Lys Ala Asn Asn Gly Ile Gln Arg Phe Arg
 305 310 315 320
 Glu Ser Thr Glu Val Ile Val His Glu Asn Pro Phe Ile Ser Val Glu
 325 330 335
 Trp Leu Lys Gly Pro Ile Leu Glu Ala Thr Ala Gly Asp Glu Leu Val
 340 345 350
 Lys Leu Pro Val Lys Leu Ala Ala Tyr Pro Pro Pro Glu Phe Gln Trp
 355 360 365
 Tyr Lys Asp Gly Lys Ala Leu Ser Gly Arg His Ser Pro His Ala Leu
 370 375 380
 Val Leu Lys Glu Val Thr Glu Ala Ser Thr Gly Thr Tyr Thr Leu Ala
 385 390 395 400
 Leu Trp Asn Ser Ala Ala Gly Ile Arg Arg Asn Ile Ser Leu Glu Leu
 405 410 415
 Val Val Asn Val Pro Pro Gln Ile His Glu Lys Glu Ala Ser Ser Pro
 420 425 430
 Ser Ile Tyr Ser Arg His Ser Arg Gln Ala Leu Thr Cys Thr Ala Tyr
 435 440 445
 Gly Val Pro Leu Pro Leu Ser Ile Gln Trp His Trp Arg Pro Trp Thr
 450 455 460
 Pro Cys Lys Met Phe Ala Gln Arg Ser Leu Arg Arg Arg Gln Gln Gln
 465 470 475 480
 Asp Leu Met Pro Gln Cys Arg Asp Trp Arg Ala Val Thr Thr Gln Asp
 485 490 495
 Ala Val Asn Pro Ile Glu Ser Leu Asp Thr Trp Thr Glu Phe Val Glu
 500 505 510

Gly Lys Asn Lys Thr Val Ser Lys Leu Val Ile Gln Asn Ala Asn Val
 515 520 525

Ser Ala Met Tyr Lys Cys Val Val Ser Asn Lys Val Gly Gln Asp Glu
 530 535 540

Arg Leu Ile Tyr Phe Tyr Val Thr Thr Ile Pro Asp Gly Phe Thr Ile
 545 550 555 560

Glu Ser Lys Pro Ser Glu Glu Leu Leu Glu Gly Gln Pro Val Leu Leu
 565 570 575

Ser Cys Gln Ala Asp Ser Tyr Lys Tyr Glu His Leu Arg Trp Tyr Arg
 580 585 590

Leu Asn Leu Ser Thr Leu His Asp Ala His Gly Asn Pro Leu Leu Leu
 595 600 605

Asp Cys Lys Asn Val His Leu Phe Ala Thr Pro Leu Ala Ala Ser Leu
 610 615 620

Glu Glu Val Ala Pro Gly Ala Arg His Ala Thr Leu Ser Leu Ser Ile
 625 630 635 640

Pro Arg Val Ala Pro Glu His Glu Gly His Tyr Val Cys Glu Val Gln
 645 650 655

Asp Arg Arg Ser His Asp Lys His Cys His Lys Lys Tyr Leu Ser Val
 660 665 670

Gln Ala Leu Glu Ala Pro Arg Leu Thr Gln Asn Leu Thr Asp Leu Leu
 675 680 685

Val Asn Val Ser Asp Ser Leu Glu Met Gln Cys Leu Val Ala Gly Ala
 690 695 700

His Ala Pro Ser Ile Val Trp Tyr Lys Asp Glu Arg Leu Leu Glu Glu
 705 710 715 720

Lys Ser Gly Val Asp Leu Ala Asp Ser Asn Gln Lys Leu Ser Ile Gln
 725 730 735

Arg Val Arg Glu Glu Asp Ala Gly Arg Tyr Leu Cys Ser Val Cys Asn
 740 745 750

Ala Lys Gly Cys Val Asn Ser Ser Ala Ser Val Ala Val Glu Gly Ser
 755 760 765

Glu Asp Lys Gly Ser Met Glu Ile Val Ile Leu Val Gly Thr Gly Val
 770 775 780
 Ile Ala Val Phe Phe Trp Val Leu Leu Leu Leu Ile Phe Cys Asn Met
 785 790 795 800
 Arg Arg Pro Ala His Ala Asp Ile Lys Thr Gly Tyr Leu Ser Ile Ile
 805 810 815
 Met Asp Pro Gly Glu Val Pro Leu Glu Glu Gln Cys Glu Tyr Leu Ser
 820 825 830
 Tyr Asp Ala Ser Gln Trp Glu Phe Pro Arg Glu Arg Leu His Leu Gly
 835 840 845
 Arg Val Leu Gly Tyr Gly Ala Phe Gly Lys Val Val Glu Ala Ser Ala
 850 855 860
 Phe Gly Ile His Lys Gly Ser Ser Cys Asp Thr Val Ala Val Lys Met
 865 870 875 880
 Leu Lys Glu Gly Ala Thr Ala Ser Glu His Arg Ala Leu Met Ser Glu
 885 890 895
 Leu Lys Ile Leu Ile His Ile Gly Asn His Leu Asn Val Val Asn Leu
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 Leu Gly Ala Cys Thr Lys Pro Gln Gly Pro Leu Met Val Ile Val Glu
 915 920 925
 Phe Cys Lys Tyr Gly Asn Leu Ser Asn Phe Leu Arg Ala Lys Arg Asp
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 Arg Ala Met Val Glu Leu Ala Arg Leu Asp Arg Arg Arg Pro Gly Ser
 965 970 975
 Ser Asp Arg Val Leu Phe Ala Arg Phe Ser Lys Thr Glu Gly Gly Ala
 980 985 990
 Arg Arg Ala Ser Pro Asp Gln Glu Ala Glu Asp Leu Trp Leu Ser Pro
 995 1000 1005
 Leu Thr Met Glu Asp Leu Val Cys Tyr Ser Phe Gln Val Ala Arg Gly
 1010 1015 1020

Met Glu Phe Leu Ala Ser Arg Lys Cys Ile His Arg Asp Leu Ala Ala
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Arg Asn Ile Leu Leu Ser Glu Ser Asp Val Val Lys Ile Cys Asp Phe
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Gly Leu Ala Arg Asp Ile Tyr Lys Asp Pro Asp Tyr Val Arg Lys Gly
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Ser Ala Arg Leu Pro Leu Lys Trp Met Ala Pro Glu Ser Ile Phe Asp
 1075 1080 1085

Lys Val Tyr Thr Thr Gln Ser Asp Val Trp Ser Phe Gly Val Leu Leu
 1090 1095 1100

Trp Glu Ile Phe Ser Leu Gly Ala Ser Pro Tyr Pro Gly Val Gln Ile
 1105 1110 1115 1120

Asn Glu Glu Phe Cys Gln Arg Leu Arg Asp Gly Thr Arg Met Arg Ala
 1125 1130 1135

Pro Glu Leu Ala Thr Pro Ala Ile Arg Arg Ile Met Leu Asn Cys Trp
 1140 1145 1150

Ser Gly Asp Pro Lys Ala Arg Pro Ala Phe Ser Glu Leu Val Glu Ile
 1155 1160 1165

Leu Gly Asp Leu Leu Gln Gly Arg Gly Leu Gln Glu Glu Glu Glu Val
 1170 1175 1180

Cys Met Ala Pro Arg Ser Ser Gln Ser Ser Glu Glu Gly Ser Phe Ser
 1185 1190 1195 1200

Gln Val Ser Thr Met Ala Leu His Ile Ala Gln Ala Asp Ala Glu Asp
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Ser Pro Pro Ser Leu Gln Arg His Ser Leu Ala Ala Arg Tyr Tyr Asn
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Trp Val Ser Phe Pro Gly Cys Leu Ala Arg Gly Ala Glu Thr Arg Gly
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Ser Ser Arg Met Lys Thr Phe Glu Glu Phe Pro Met Thr Pro Thr Thr
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Tyr Lys Gly Ser Val Asp Asn Gln Thr Asp Ser Gly Met Val Leu Ala

1265		1270		1275		1280									
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Phe Arg

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<400> 33

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<210> 36
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<210> 37
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<400> 37

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			20				25						30		

Phe	Phe	Ala	Lys	Ala	Arg	Ala	Thr	Phe	Phe	Ser	Ala	Met	Asn	Pro	Gln
		35					40					45			

Gly	Ser	Glu	Gln	Asp	Val	Glu	Tyr	Ser	Val	Val	Gln	His	Ala	Asp	Gly
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Glu Lys Ser Asn Val Leu Arg Lys Leu Leu Lys Arg Ala Asn Ser Tyr
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Glu Asp Ala Met Met Pro Phe Pro Gly Ala Thr Ile Ile Ser Gln Leu
 85 90 95

Leu Lys Asn Asn Met Asn Lys Asn Gly Gly Thr Glu Pro Ser Phe Gln
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Ala Ser Gly Leu Ser Ser Thr Gly Ser Glu Val His Gln Glu Asp Ile
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Cys Ser Asn Ser Ser Arg Asp Ser Pro Pro Glu Cys Leu Ser Pro Phe
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Gly Arg Pro Thr Met Ser Gln Phe Asp Met Asp Arg Leu Cys Asp Glu
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His Leu Arg Ala Lys Arg Ala Arg Val Glu Asn Ile Ile Arg Gly Met
 165 170 175

Ser His Ser Pro Ser Val Ala Leu Arg Gly Asn Glu Asn Glu Arg Glu
 180 185 190

Met Ala Pro Gln Ser Val Ser Pro Arg Glu Ser Tyr Arg Glu Asn Lys
 195 200 205

Arg Lys Gln Lys Leu Pro Gln Gln Gln Gln Gln Ser Phe Gln Gln Leu
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Val Ser Ala Arg Lys Glu Gln Lys Arg Glu Glu Arg Arg Gln Leu Lys
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Gln Gln Leu Glu Asp Met Gln Lys Gln Leu Arg Gln Leu Gln Glu Lys
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Phe Tyr Gln Ile Tyr Asp Ser Thr Asp Ser Glu Asn Asp Glu Asp Gly
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Asn Leu Ser Glu Asp Ser Met Arg Ser Glu Ile Leu Asp Ala Arg Ala
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Gly Gln Phe Ile Asp Arg Ala Arg Ala Leu Ile Arg Glu Gln Glu Met
 305 310 315 320

Gln Glu Gly Leu Ser Pro Asn His Leu Lys Lys Ala Lys Leu Met Phe
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Phe Tyr Thr Arg Tyr Pro Ser Ser Asn Met Leu Lys Thr Tyr Phe Ser
595 600 605

Asp Val Lys Phe Asn Arg Cys Ile Thr Ser Gln Leu Ile Lys Trp Phe
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625 630 635 640

Gln Ala Ile Asn Asp Gly Val Thr Ser Thr Glu Glu Leu Ser Ile Thr
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Arg Asp Cys Glu Leu Tyr Arg Ala Leu Asn Met His Tyr Asn Lys Ala
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Asn Asp Phe Glu Val Pro Glu Arg Phe Leu Glu Val Ala Gln Ile Thr
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Leu Arg Glu Phe Phe Asn Ala Ile Ile Ala Gly Lys Asp Val Asp Pro
690 695 700

Ser Trp Lys Lys Ala Ile Tyr Lys Val Ile Cys Lys Leu Asp Ser Glu
705 710 715 720

Val Pro Glu Ile Phe Lys Ser Pro Asn Cys Leu Gln Glu Leu Leu His
725 730 735

Glu